

## PLATE II.

- Fig. 13. *Pupa layardi*, Bens.  
 Figs. 14, 15. — *noltei*, Bttg.  
 Fig. 16. — *ovampoensis*, M. & P.  
 Figs. 17, 18. — *perplexa*, Burnup, sp. n.  
 Fig. 19. — *quantula*, M. & P.  
 Fig. 20. — *sykesii*, M. & P.  
 Fig. 21. — —, var. *inconspicua*, Burnup, nov.  
 Fig. 22. — *tabularis*, M. & P.  
 Fig. 23. — (*Fauxulus*) *glanvilleana*, Anc.  
 Fig. 24. — (—) *pamphorodon*, Bens.  
 Fig. 25. — (—) *pereximia*, M. & P.  
 Fig. 26. — (*Vertigo*) *sinistrorsa*, Crav.

XI.—*New Deep-sea Fishes from the South-west Coast of Ireland.* By E. W. L. HOLT and L. W. BYRNE.

[Plate III.]

THE fishes described below were taken by Messrs. Farran and Kemp in the course of fishery investigations carried out in the 'Helga' on behalf of the Fisheries Branch of the Department of Agriculture and Technical Instruction for Ireland. All occurred in depths of less than 1000 fathoms and, consequently, within the British and Irish marine area.

Gadidæ.

Genus *LÆMONEMA*, Günther.

The definition of this genus appears to require revision and should read as follows:—

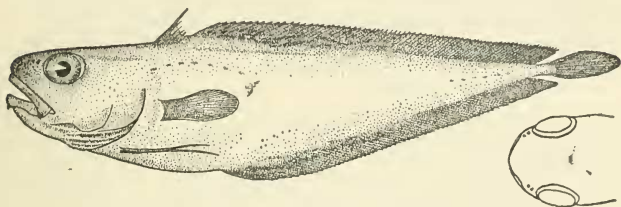
"Body of moderate length, covered with small scales. Fins scaleless, their bases sometimes clothed with loose skin. Two dorsal fins and one anal, anterior dorsal with 5 or 6 rays. Caudal separated by a short interval from posterior dorsal and anal. Ventrals apparently reduced to a single long ray, bifid at its extremity; other rays, if present, minute and closely apposed to the large ray. Bands of villiform teeth in jaws; a small group of vomerine teeth usually present. Chin usually with a small barbel."

*Læmonema* seems, as Günther (1887) has remarked, to scarcely deserve generic separation from *Phycis*. The most obvious distinction lies in the first dorsal fin, which in *Phycis* has 8–12 rays and in *Læmonema* 5 or 6. The presence or absence of a barbel has no necessary generic value in Gadidæ;

for instance, *Gadus merlangus* always has a small barbel when young, very rarely when adult. Vomerine teeth also may disappear with age, as in *Gadiculus argenteus*.

*Læmonema latifrons*, sp. n.\*

Form rather massive anteriorly, compressed behind the shoulders; body distinctly elevated at the nape, highest at origin of second dorsal, and thence tapering to a very slender caudal peduncle. Head broad and somewhat depressed, but less broad than high, its length about equal to or slightly less than greatest height of body and about  $4\frac{1}{4}$  in total length without caudal fin. Snout obtuse in vertical, broadly rounded



*Læmonema latifrons*.  $\times \frac{2}{3}$  ca.

in horizontal profile, about  $1\frac{1}{2}$  times in horizontal diameter of eye, which is itself contained 3 to  $3\frac{1}{4}$  times in length of head and is slightly less than the width of the interorbital space. Height of caudal peduncle about  $\frac{1}{3}$  of the horizontal diameter of the eye. Barbel minute. Gape rather oblique, angle of jaw not extending beyond centre of eye, upper jaw somewhat protruding; small teeth in bands in the jaws and in a small patch on the vomer. First dorsal, arising about opposite the

\* Absence of material of other Atlantic species of a comparable size makes it impossible to construct a useful key to the genus, but the following brief notes may be of assistance:—

In comparison with *L. latifrons*:

*L. barbatula*, Goode and Bean, has a much smaller head, narrower interorbital space, and shorter ventrals;

*L. globiceps*, Gilch., has fewer and much larger scales;

*L. melanurum*, Goode and Bean, has a narrower interorbital space, smaller scales, and much longer barbel;

*L. robustum*, Gthr., has fewer fin-rays, much longer ventrals, and a less broadly rounded snout;

And *L. yarrelli* (Lowe) has larger and fewer scales and a comparatively narrower interorbital space.

pectoral, with five rays, the longest about equal to the horizontal diameter of the eye and half as long as the pectoral. Second dorsal and anal respectively with about 67-70 and about 59-65 rays, their bases clothed, especially in their anterior parts, with loose scaleless skin. Ventrals consisting of a single long divided ray, extending to or slightly beyond the origin of the anal, and of one or more minute rays closely apposed to the long ray. Scales small, at least 140 transverse series crossing the lateral line, about 14 or more in a vertical series between the first dorsal and the lateral line, about 35 in the ventral continuation of the same series. Lateral line indistinct posteriorly; about 20 modified scales can be detected on the anterior five-sixths of the body.

Coloration apparently uniform dark brown (most of the head and body is now scaleless and pale); fins blackish brown, without perceptible white border.

*Loc.* S.R. 489, 4. ix. 07, 51° 35' N., 11° 55' W., 720 fath.; trawl.

Two, 137 and 168 mm.

#### *Dimensions of Type Specimens.*

	mm.	mm.
Total length.....	168	137
"    "    without caudal fin .....	151	124
Length of head .....	35	29
"    snout .....	8	6.5
Horizontal diameter of eye .....	11.5	9
Width of interorbital space .....	13.25	11
Snout to first dorsal fin .....	40	34
"    second dorsal fin.....	47	41
"    anus .....	49	42
"    anal fin .....	59	51
Height of body at commencement of second dorsal fin .....	37	28
Height of caudal peduncle.....	3.5	3
Length of longest ray of first dorsal fin ..	11.5	11
,    pectoral fin .....	23	16
"    ventral fin .....	27+	25

#### *Zeidæ.*

#### Genus *CYTTOSOMA*.

An examination of such examples of Gilchrist's recently described species as are in the British Museum and of the type of *C. helgæ*, below described, has convinced us that the genus *Cyttosoma*, Gilch. (1904), requires redefinition in such manner as to comprehend both that genus as originally defined and *Neocyttus*, Gilch. (1906). While regarding

Boulenger's suggestion (1903) that *Cyttosoma* is merely the adult form of *Oreosoma*, C. & V., as highly probable, we prefer not to apply the latter name to the genus now under consideration until further material is available.

For present purposes the genus may be defined as follows:—

CYTTOSOMA (Gilch.).

? *Oreosoma*, C. & V.

*Cyttosoma*, Gilch. (1904 & 1906), + *Neocyttus*, Gilch. (1906).

Form compressed and elevated, more or less rhomboidal; body and parts of head covered with moderate or small ctenoid scales. Rows of bony scutes or tubercles sometimes \* present on belly and sides. No bony scutes or tubercles along bases of dorsal and anal fins. Dorsal and anal fins similar, their spinous and articulated rays continuous but separated by notches. Dorsal spines VI–VII, anal III–IV. Upper jaw protrusible. Small teeth in the jaws and usually on vomer.

*Oreosoma atlanticum*, C. & V., is known from two young specimens only (the largest 68 mm. long) in which the bony tubercles on the sides of the body are relatively enormous; there is nothing to definitely connect these with any known adult form, but they may, as suggested by Boulenger (1903), prove to be the young of some fish closely allied to *C. verrucosum*.

Of *Pseudocyttus maculatus*, Gilch. (1906), we have seen no specimen, and the figure referred to in the original description is as yet unpublished. The species is imperfectly characterized, but is stated to have two anal spines only and cycloid scales, and therefore does not fall within the definition of *Cyttosoma* above suggested.

The characters which may prove to be valid for the distinction of species of *Cyttosoma* at all stages are somewhat uncertain. No reliance can be placed on the lines of bony tubercles which occur in the young of some and, perhaps, of all species, since, while in *C. verrucosum* they persist in large examples, they disappear at a comparatively early stage in *C. boops* and are not present in any of the hitherto observed stages of the other species. The scales probably maintain their number, but it is not improbable that they become smoother with age and their asperities are rather easily rubbed off, as, for instance, in the type of *C. helgæ*, of which

\* Probably always in young, but some species are known only from specimens of a size at which the scutes have already been lost in others.

the anterior parts were certainly rougher when first observed than at present, after several journeys between Dublin and the British Museum.

The shape of the back, dependent on the degree of elevation of the body at the origin of the dorsal fin, will probably be a good character in all but the youngest stages, the genus being divisible into forms in which the profile between eyes and dorsal fin is concave and those in which the profile is either straight or slightly convex. The pattern of the inter-orbital area, depending on the relative form and positions of the frontal and prefrontal bones, and the consequent outline of the scale-clad area overlying the ethmoid region, probably also offers a constant character.

In the development of the dorsal and anal spines, relative to the size of the individual, *C. boops* is intermediate between *C. verrucosum* and the other species; but while this character has no doubt a constant specific value, its application at different phases of growth requires considerable caution, because the length of the spines, relative to that of the individual and of the longest articulated rays in the same fin, no doubt undergoes considerable reduction as the fish increases in size.

So far as our knowledge at present extends, the species of *Cyttosoma* may be distinguished as follows:—

1. Dorsal spines VI, anal III, all comparatively feeble and (in a specimen 200 mm. long without caudal) much shorter than the longest articulated rays. Dorsal profile from back of head to origin of dorsal fin straight or slightly convex. Tubercles on sides of belly persistent at a length of 200 mm. (without caudal). L. l. ca. 95 .. 1. *C. verrucosum*, Gilch.
2. Dorsal spines VI-VII, anal III-IV, one or more in each fin thickened and produced. Dorsal profile from back of head to origin of dorsal fin more or less concave.
  - A. Second, third, and fourth dorsal spines (in specimens of 95 and 150 mm. without caudal) moderately stout and produced, but shorter than longest articulated rays of same fin, second or third the longest, the third but little longer than fourth. Tubercles on sides of belly obsolescent at 95 mm., absent at 150 mm. L. l. ca. 100. A conspicuous horizontal ridge on operculum ..... 2. *C. boops*, Gilch.
  - B. Second dorsal and first anal spines (in specimens of 108 to 200 mm. without caudal) much longer and stouter than others, and as long as succeeding articulated rays. (*Neocyttus*, Gilch.)

- i. L. l. ca. 102. Interorbital area overlying ethmoid region and bounded by prefrontals and frontals, almost rectangular. No tubercles on belly at 108 mm. (without caudal). . . . . 3. *C. rhomboidalis* [(Gilch.).
- ii. L. l. ca. 80-85. Interorbital area overlying ethmoid region and bounded by prefrontals and frontals, lanceolate. No tubercles on belly at 200 mm. (without caudal) . . . . . 4. *C. helgæ*, sp. n. (*infra*).

*Cyttosoma helgæ*, sp. n. (Pl. III.)

Head moderately, body greatly elevated and compressed; greatest width in opercular region; anterior profile from above eyes to origin of dorsal fin concave; bases of dorsal and anal fins nearly straight. Length of head without jaws \* about 3 in total length (without jaws \* and caudal fin), about twice in distance from origin of second dorsal spine to origin of ventral spine, and about  $2\frac{1}{2}$  in distance from origin of second dorsal spine to origin of first anal spine. Snout (without jaws) about twice in horizontal diameter of orbit † and nearly  $4\frac{1}{2}$  times in head (without jaws). Vertical diameter of orbit about  $\frac{4}{5}$  of horizontal diameter and about equal to width of interorbital space. Caudal peduncle about as long as orbit; its length about double its depth and three times its width.

Median area of interorbital space lying between the rather broad frontals and prefrontals and bounded posteriorly by the frontals, lanceolate, slightly convex, and covered with small very rough scales. All the exposed bones of the head and gill-cover granular or rugose, with their exposed margins finely but bluntly and irregularly denticulated. No distinctly projecting ridge on operculum. Maxilla extending to below front of eye, with a central rugose area not extending to its edges. Mouth protrusible, when completely closed projecting but little (about  $\frac{1}{3}$  horizontal diameter of eye) beyond preorbitals. Both jaws with a few small and obsolescent teeth; vomer toothless. Suborbital wide, its vertical measurement below centre of eye about  $\frac{1}{3}$  vertical diameter of orbit.

Dorsal fin originating slightly behind vertical from ventrals, VII 34; the second spine very stout, longitudinally striated, and as long as horizontal diameter of eye; articulated rays

\* It seems best to adopt this standard of length, as the jaws are often protruded in preserved specimens and cannot be closed without risk of injury. The front edge of the preorbital is always well defined.

† The marked bulging of the eyes in some species of this genus is plainly, in part at least, caused by circumstances attending capture in deep water.

unbranched. Anal fin originating below fifth spine of dorsal, IV \* 30 ; its first spine similar in all respects to second dorsal spine and its articulated rays unbranched. Pectoral fin broadly ovate and as long as eye, with 19 unbranched rays. Ventral fins inserted rather close together, each with one spine, similar in all respects to second dorsal spine, and 6 † branched rays. Longest articulated rays of dorsal, anal, and caudal as long as second dorsal and first anal spines.

Lateral line with a bold anterior curve passing into the straight posterior part without any approach to an angle, composed of about 82 modified scales, including about 4 which overlie the base of the caudal fin, and crossed by about the same number of transverse series of scales. About 16 scales in a transverse series between the second dorsal spine and the highest part of the lateral line and about 18 between the bases of pectoral and ventral fins. Scales ctenoid, those on the posterior part of the body of moderate size ; nearly smooth, with finely denticulate margins, which form a fairly regular net-like pattern, the exposed parts of scales being much higher than wide ; scales wider on the caudal peduncle, where there are 3 above and 3 below the lateral line in a lateral view ; a row of somewhat enlarged scales, forming a bead-like pattern at the bases of the dorsal and anal fins, the number of scales approximately corresponding to the number of rays. Scales smaller and crowded on the anterior parts of the sides.

On the upper part of the body in front of the origin of the dorsal fin, on the belly and isthmus, and on the scale-clad parts of the head, the scales are covered with asperities (which are somewhat easily rubbed off), and these portions of the head and body are consequently much rougher than the remainder of the body. There is no trace of any series of bony scutes or tubercles.

Coloration ‡ grey, mouth-parts and gill-membranes bluish black ; fin-membranes dark purplish brown or black, and articulated rays dark brownish grey.

\* The fourth ray has been broken and is now a mere stump, but appears to have undoubtedly been a spine.

† The two distal articulated rays originate together and may be fairly regarded as either a single bifid or two rays (*i. e.* either five or six in all). We follow what seems to have been the general practice in describing allied forms in reckoning them as two rays.

‡ "Pale grey, bluish on gastric region, dark bluish grey on caudal, dorsal, ventral, and anal. Branchiostegal membrane deep black, showing beyond operculum. Iris black, pupil transparent (black), mouth black" (Note taken at time of capture by Mr. Kemp). Since its capture the specimen has been stained a reddish yellow by the colouring-matter extracted from some echinoderms preserved in the same vessel.

Length of specimen 239 mm., 201 mm. without caudal fin.

*Loc.* S.R. 487, 3. ix. 07, 51° 36' N., 11° 57' W., 540-660 fath.; trawl.

The above diagnosis is based on a single specimen, which has the following dimensions:—

Total length (with mouth closed) .....	mm. 239
" " without jaws * or caudal fin.....	198 *
Length of head without jaws * .....	65 *
" snout " " .....	15 *
Horizontal diameter of orbit .....	29
Vertical " " .....	23
Interorbital breadth .....	22
Vertical height of body at origin of dorsal ....	131
Distance from second dorsal to first anal spine..	148
Depth of caudal peduncle .....	15
Width of head at gill-cover .....	35
" caudal peduncle .....	10
Length of second dorsal spine.....	31
" first anal " .....	31.5
" ventral " .....	30

### *Ceratiidæ.*

#### *Oneirodes megaceros*, sp. n.

Body ovoid and compressed, covered with smooth skin, its greatest height about  $1\frac{2}{3}$  in total length without caudal fin; belly tumid. Head very large, somewhat compressed, its length (to hind edge of gill-opening) about  $1\frac{3}{5}$  in total length. Frontal and mandibular spines well developed; breadth of head between tips of former about twice and between tips of latter about  $1\frac{1}{5}$  times in its length; distance from tip of frontal spine to tip of mandibular spine about  $1\frac{1}{3}$  in length of head. Snout blunt, lower jaw slightly projecting, gape nearly horizontal. Eyes minute, lying vertically below frontal spines. Teeth in jaws slender, curved, of unequal size, and depressible; a few similar teeth on either side of vomer. Caudal peduncle very short, its height about 4 times in length of head. D. I, I, 6; anterior spine situate far forward on head and developed into a tentacle which is longer than the head; second spine vestigial and reduced to a small tubercle midway between the anterior spine and the articulated rays, which are feebly developed and opposite the anal. A. 4, feebly developed. The tentacle is jointed at about  $\frac{2}{3}$  of the distance from its origin to its tip, which is clavate and bears on its upper edge anteriorly a short digitiform limb with

\* To include jaws (with mouth closed) 3 mm. should be added to these measurements.

several short branches; behind this a tuft of very slender filaments, followed by a luminous organ in the form of a backwardly directed truncated cone, and posteriorly a rather stout filament a little longer than the clavate head of the tentacle (the whole apparatus resembling that of *O. eschrichtii*). Pectoral above and in front of gill-opening with 14 feeble rays, the longest about a quarter as long as the head. Caudal with 8 rays, the longest more than half as long as head.

Coloration dense black, fin-membranes and tip of tentacle with its appendages colourless. Stalk of tentacle (in present condition of specimen and perhaps normally) pale.

*Loc.* S.R. 497, 10. ix. 07, 51° 2' N., 11° 36' W., 775-795 fath.; ooze, trawl.

*Dimensions of Type.*

	mm.
Total length, including lower jaw and caudal fin ..	89
"    without caudal fin .....	67
Length of head (tip of snout to hind edge of gill-opening) .....	41
Tip of snout to base of pectoral fin-rays .....	36
"    "    eye (between verticals) .....	ca. 12
"    "    angle of jaw (between verticals) ..	ca. 19
Horizontal diameter of eye .....	ca. 3
Breadth between tips of frontal spines .....	20
"    "    mandibular spines* .....	34
Distance from tip of frontal to tip of mandibular spine (actual) .....	31
Greatest height (a little anterior to gill-opening) ..	47
Height of caudal peduncle .....	10

It is with some hesitation that we treat our specimen as specifically distinct from *O. eschrichtii*, Lüt. (1871), which is at present known from a single specimen, about 8 inches long, taken off Greenland. The two species agree in all essential particulars, and the only obvious differences lie in the lengths of their respective tentacles (that of *O. eschrichtii* being less than half as long as the head and that of *O. megaceros* longer than the head) and in the reduction of the second dorsal spine (which in *O. eschrichtii* is as long as the tentacle) to a mere vestige in *O. megaceros*. It is possible that these differences may be of a developmental or sexual nature only, as the type of *O. megaceros* is less than half the length of that of *O. eschrichtii*. We have, however, no evidence of any reduction in length of the tentacle of Ceratiids with growth, and the tentacle of *O. megaceros* is actually about a third as long again as that of *O. eschrichtii*. Moreover, in the very small known specimens of *O. niger*, Brauer,

\* This dimension can be reduced by slight pressure.

and *O. glomerosus*, Alcock, the tentacles are relatively very short. The tubercle representing the second dorsal rays in *O. megaceros* is certainly not the result of any recent absorption of a large ray. A row of similar tubercles is apparently present on the fore part of the back of *O. niger*, and is shown in Brauer's figure but not mentioned in the text.

To the other species formerly referred to *Paroneiroides*, Alcock (1890), and *Dolopichthys*, Garman (1899), but now included by Alcock (1899) and Brauer (1906) in *Oneiroides* (the original definition of which must in consequence be modified by omitting all reference to the number and position of the dorsal spines), *O. megaceros* shows no very close affinity.

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### EXPLANATION OF PLATE III.

*Cyttosoma helgæ*, type,  $\times \frac{1}{2}$  ca., based on a photograph.

## XII.—Description of a new Genus and Species of Cleridæ. By C. J. GAHAN, M.A.

### DIEROPSIS, gen. nov.

Eyes with a deep subtriangular emargination in front, from which a line passes backwards almost up to the hind border, dividing each eye into two parts: a more finely faceted upper part and a more coarsely faceted lower part. Antennæ rather short, 11-jointed, the last three joints dilated and compressed, forming a somewhat triangular club. Labrum distinct, transverse, with a more or less deep sinuate emargination in front. Last joint of maxillary and labial palpi triangular. Prothorax with a more or less strongly developed tubercle at the middle of each side. Elytra elongate, somewhat parallel-sided, obtusely rounded at the apex. Legs moderately stout, subequal in length in the female, the front pair greatly elongated in the male; the hind femora much shorter than the abdomen; tarsi moderately long, with the first joint very short, the second a little shorter than the two succeeding joints united; the claw-joint rather broad,